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Federal Utility Partnership Working Group - Fall 2010

Utility Energy Savings Contract Project

Redstone Arsenal, Alabama

Presented by

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For Mark D. Smith, PE, CEM, CEA

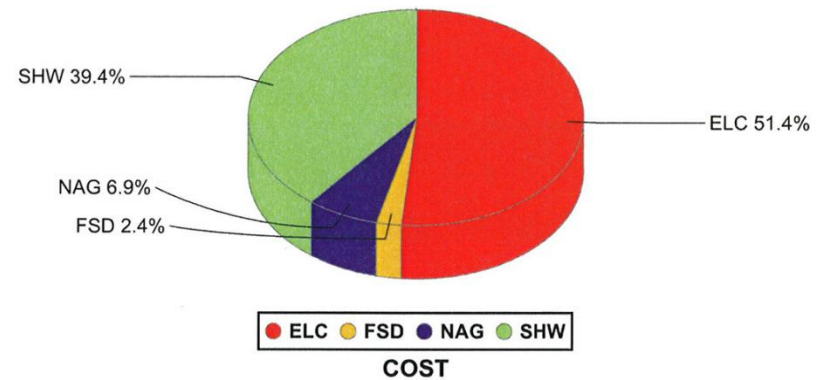
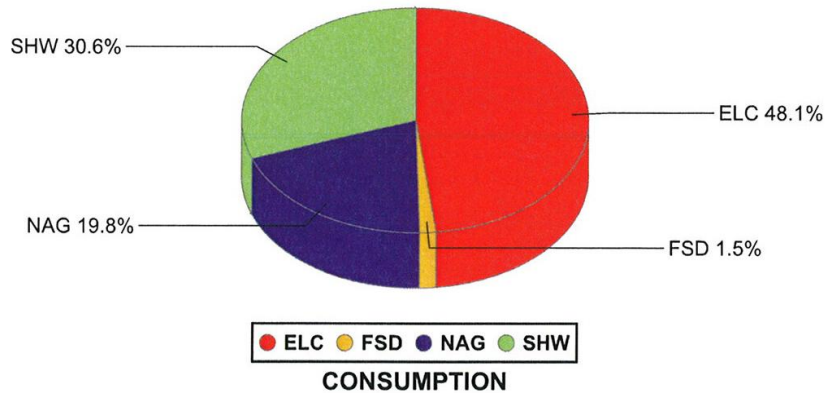
Energy Manager, Redstone Arsenal



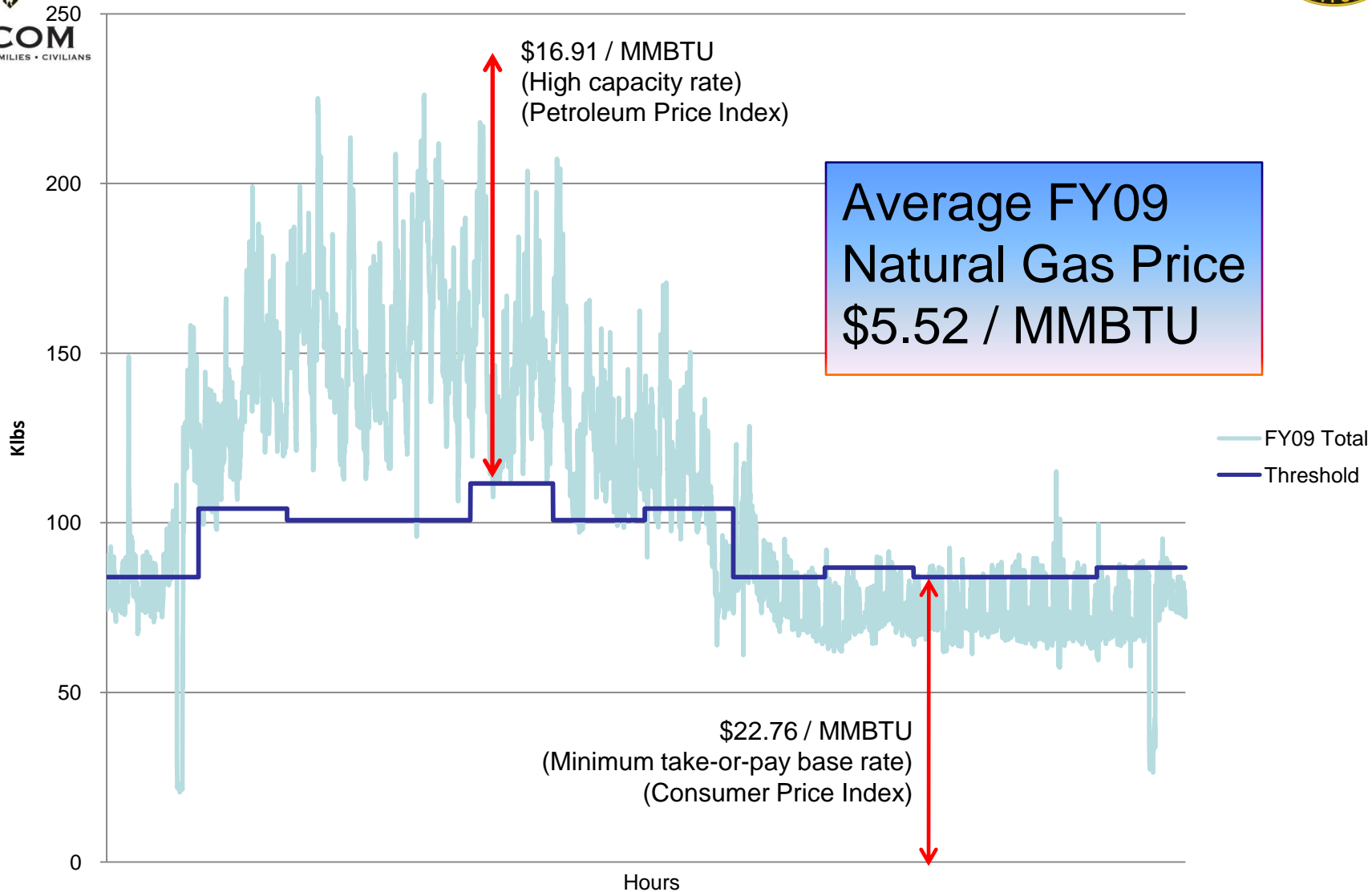
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ENERGY DISTRIBUTION FOR 2009



FY09 Total Hourly Steam



Resolution

- Manage the steam load to the minimum take-or-pay thresholds under the existing contract.
 - ✓ Prune the distribution system by eliminating long runs with low density and high thermal losses.
 - ✓ Ensure summer steam loads are utilized.
 - Cooling – Absorption chillers
 - Domestic hot water

Method

- UESC with TVA
 - ✓ Decommissioned four miles of existing steam service and installed a natural gas distribution system.
 - ✓ Audited 44 buildings for feasible energy conservation measures.
 - Lighting
 - Controls / Energy Management System
 - HVAC upgrades
 - Insulation

Method

	Project Cost	Energy Savings	Simple Pay Back
Meter Group A	\$9,823,367	\$1,411,825	7 yrs

- Monthly payment amount - \$111,975 – 120 months
- Monthly savings - ~\$117,652

Method

- Key Components
 - ✓ Commissioning Agent
 - Project documentation and design adherence
 - ✓ Quality Assurance and Engineering
 - Monitor maintenance and energy savings as part of the performance assurance plan
 - ✓ Measurement and Verification
 - One year
 - ✓ Preventative Maintenance
 - Three years

Commissioning Agent

- Independent Third Party
- Involved through entire project implementation process
 - Design
 - Construction
 - Acceptance
 - Warranty
- Provided final commissioning documentation
- Funded through UESC project (About 1.5% of total project cost)

Commissioning Scope

- ✓ Design Phase Commissioning
 - Basis of Design evaluation
 - Construction Document evaluation
- ✓ Construction Phase Commissioning
 - Submittal and Shop Drawing Review
 - Start-up procedure Submittals
 - Site Observations
 - Pre-Functional Tests
 - Project Issues Log



Commissioning Scope (cont.)

- ✓ Acceptance Phase Commissioning
 - Functional Performance testing
 - O&M Manual
 - Training and Orientation
 - Final Commissioning Report
- ✓ Warranty Period Commissioning



Commissioning Benefits

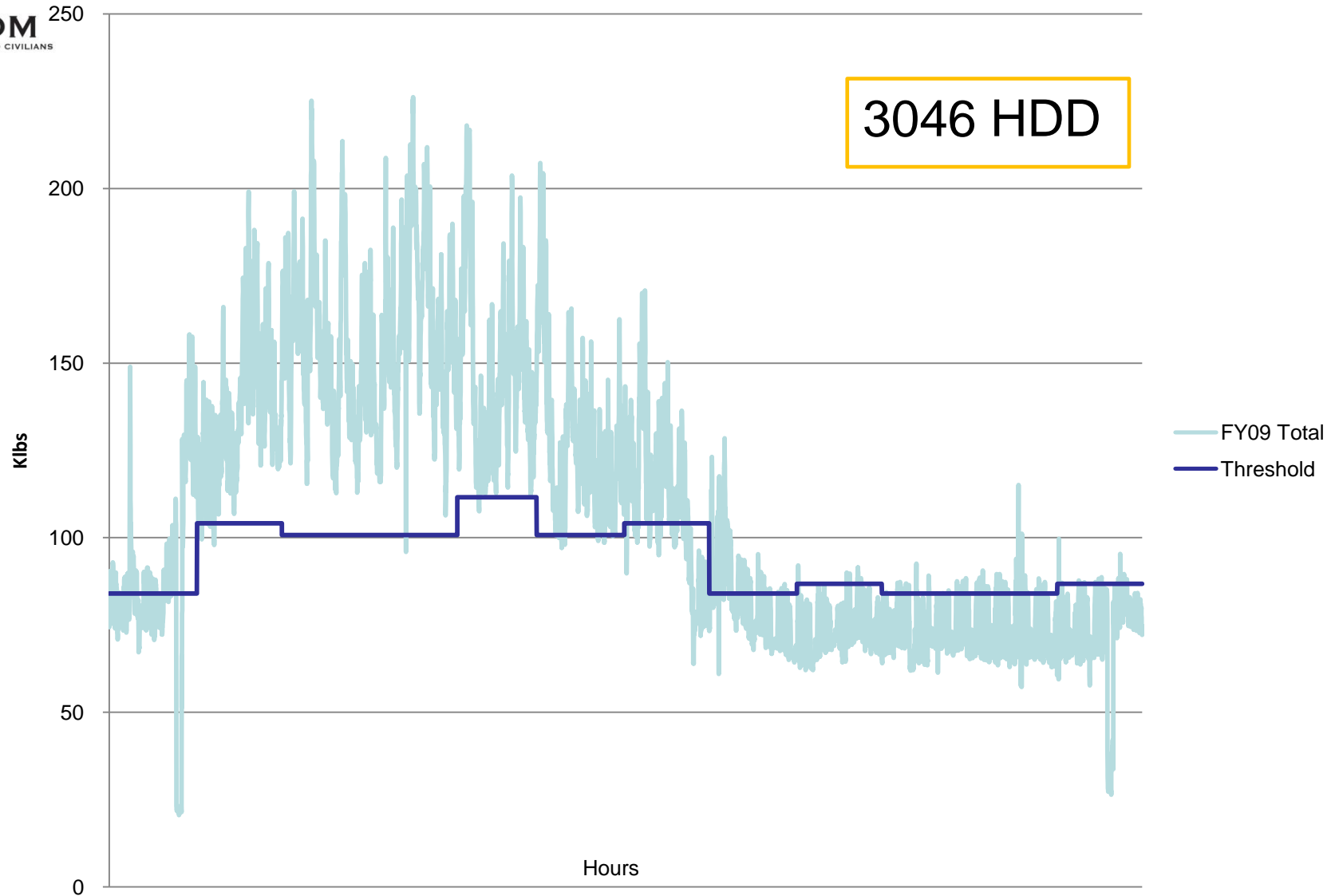
- ✓ Eyes in the field to protect government interests
- ✓ Project issues log that required resolution prior to systems acceptance testing
- ✓ Acceptance testing to insure proper operation of all systems
- ✓ Final documentation of all tasks, findings, and actual building systems performance



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FY09 Total Hourly Steam

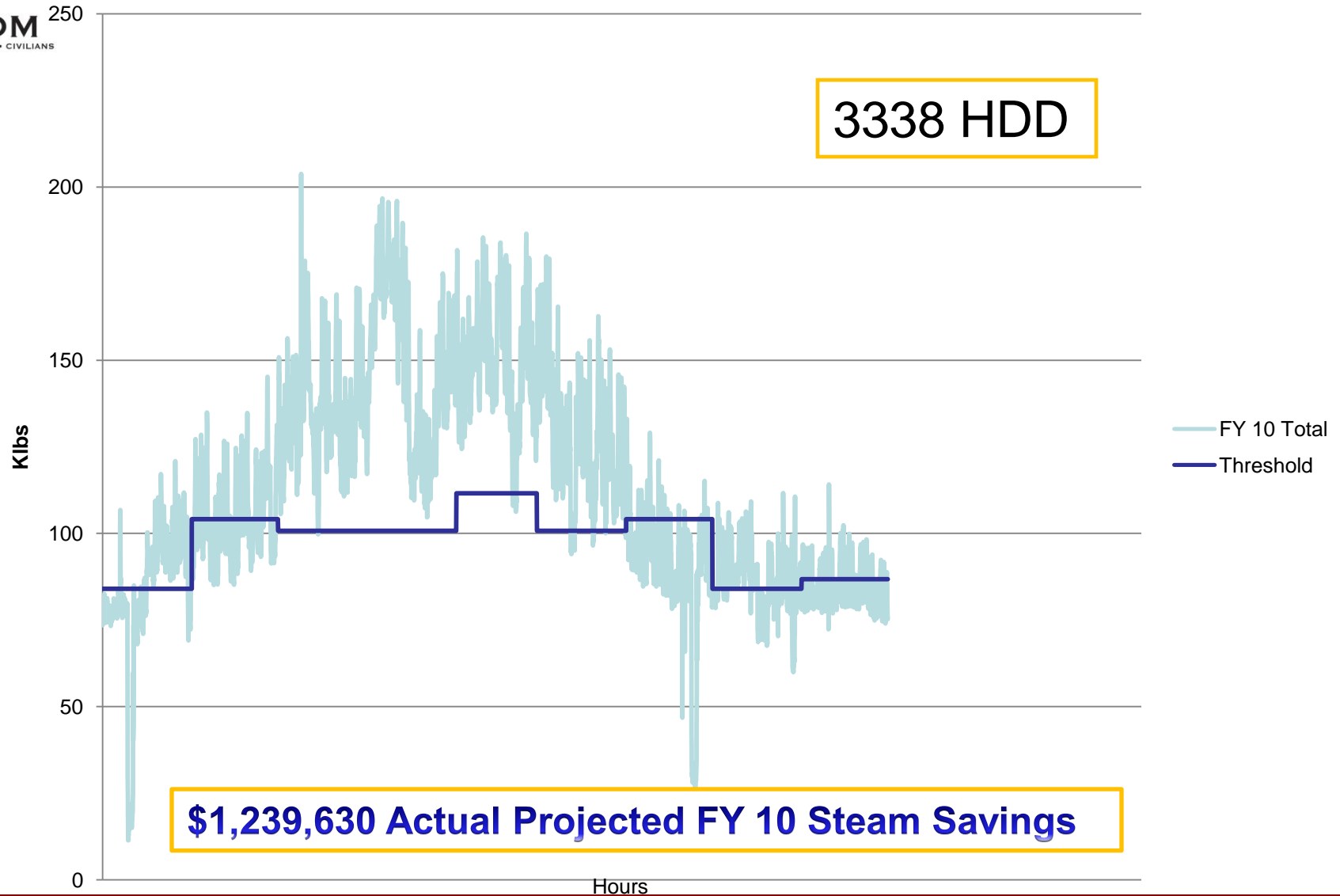




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FY10 Total Hourly Steam





Direction

- Award second UESC task order for Steam Decentralization meter group B
 - ✓ Include commissioning agent
- Audit government owned boiler plants / distribution system and associated buildings
- Conduct Audits for reimbursable customers
- Re-commission Major Existing Facilities



Questions?